Allied Telesyn

AT-FS201
AT-FS202
AT-FS202SC/FS1

Bridging Media Converters

Version 4

Installation Guide

PN 613-000400 Rev A

Electrical Safety and Emission Compliance Statement

Standards: This product meets the following standards.

U.S. Federal Communications Commission

Declaration of Conformity

Radiated Energy

Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Note: Modifications or changes not expressly approved of by the manufacturer or the FCC, can void your right to operate this equipment.

Industry Canada

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

RFI Emissions — FCC Class A, EN55022 Class A,

Warning: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Immunity	EN55024
Electrical Safety	EN60950 (TUV), UL 60950 ($_{C}UL_{US}$), CSA 950
Laser Safety	EN60825

Warning: Class 1 Laser product. **1**

This is a “Class 1 LED Product” (AT-FS201 model).

Warning: Do not stare into the Laser beam. **2**

At time of installation, the Fiber Optic Lasers comply with FDA Radiation Performance Standard 21CFR Subchapter J, applicable at date date of manufacture.

Important: Appendix C contains translated safety statements for installing this equipment. When you see the 👓, go to Appendix C for the translated safety statement in your language.

Wichtig: Anhang C enthält übersetzte Sicherheitshinweise für die Installation dieses Geräts. Wenn Sie 👓 sehen, schlagen Sie in Anhang C den übersetzten Sicherheitshinweis in Ihrer Sprache nach.

Importante: El Apéndice C contiene mensajes de seguridad traducidos para la instalación de este equipo. Cuando vea el símbolo 👓, vaya al Apéndice C para ver el mensaje de seguridad traducido a su idioma.

Important : L'annexe C contient les instructions de sécurité relatives à l'installation de cet équipement. Lorsque vous voyez le symbole 👓, reportez-vous à l'annexe C pour consulter la traduction de ces instructions dans votre langue.

Importante: l'Appendice C contiene avvisi di sicurezza tradotti per l'installazione di questa apparecchiatura. Il simbolo 👓, indica di consultare l'Appendice C per l'avviso di sicurezza nella propria lingua.

Важно: Приложение C содержит переведенную инструкцию по безопасности при установке данного устройства. Если Вы встретите 👓, перейдите к Приложению C для получения переведенной инструкции по безопасности.

Contents

Preface

This guide contains instructions on how to install an AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters.

How This Guide is Organized

This guide contains the following chapters and appendices:

This preface contains the following sections:

Document Conventions

This document uses the following conventions:

Note
Notes provide additional information.

Caution
Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.

Warning
Warnings inform you that performing or omitting a specific action may result in bodily injury.

Where to Find Web-based Guides

The installation and user guides for all Allied Telesyn products are available in portable document format (PDF) on our web site at **www.alliedtelesyn.com**. You can view the documents online or download them onto a local workstation or server.

Contacting Allied Telesyn

This section provides Allied Telesyn contact information for technical support as well as sales or corporate information.

Online Support

You can request technical support online by accessing the Allied Telesyn Knowledge Base: **www.alliedtelesyn.com/kb**. You can use the Knowledge Base to submit questions to our technical support staff and review answers to previously asked questions.

Email and Telephone Support

For technical support via email or telephone, refer to the Support & Services section of the Allied Telesyn web site: **www.alliedtelesyn.com**.

Returning Products

Products for return or repair must first be assigned a return materials authorization (RMA) number. A product sent to Allied Telesyn without an RMA number will be returned to the sender at the sender’s expense.

To obtain an RMA number, contact Allied Telesyn’s Technical Support group through the Allied Telesyn web site: **www.alliedtelesyn.com**.

Sales or Corporate Information

You can contact Allied Telesyn for sales or corporate information on our web site: **www.alliedtelesyn.com**. To find the contact information for your country, select Contact Us -> Worldwide Contacts.

Chapter 1
Overview

The AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters include the following models:

- AT-FS201
- AT-FS202
- AT-FS202SC/FS1

The AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters are designed to extend the distance of your network by converting Fast Ethernet data between twisted pair cabling and fiber optic cabling. These dual-port converters can also improve the performance of your network by dividing it into smaller, more manageable segments.

Each converter features a 100Base-FX fiber optic port and a 10Base-T/100Base-TX twisted pair port. The fiber optic port has either a dual SC or a dual ST connector and a maximum operating distance of 2 kilometers (1.24 miles) to 15 kilometers (9.4 miles), depending on the model. The twisted pair port has a RJ-45 connector with a maximum operating distance of 100 meters (328 feet).

The fiber optic port operates at 100 Mbps, while the twisted pair port operates at 10 Mbps or 100 Mbps. Both ports feature half- and full-duplex operation.

AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters can be installed on a desktop or in an AT-MCR12 chassis. These converters are easy to install and do not require software configuration or management.

Introduction

The fiber optic port on the bridging converter offers an important advantage over fiber optic ports commonly found on Fast Ethernet equipment. It can simultaneously transmit and receive Ethernet data for full-duplex operation over a single fiber strand. In comparison, a conventional fiber optic port requires two fiber strands for full-duplex operation.

In a conventional fiber optic installation, each fiber optic strand carries only one data stream at a time and in only one direction, as shown in Figure 1.

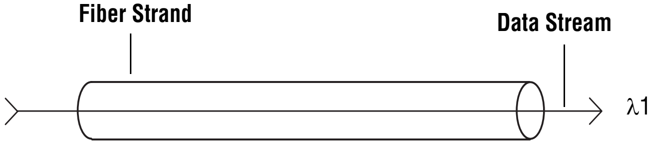


Figure 1. Data Stream on a Single Fiber Strand

The data stream is transmitted at a specific wavelength, typically 850 nanometers (nm), 1310 nm, or 1550 nm. These wavelengths are known for their low attenuation.

Full-duplex operation in a conventional fiber installation involves two separate fiber strands, one for transmitting data and another for receiving data, as shown in Figure 2. Both data streams are transmitted at the same wavelength, but since each is on a separate strand, the signals remain separate.

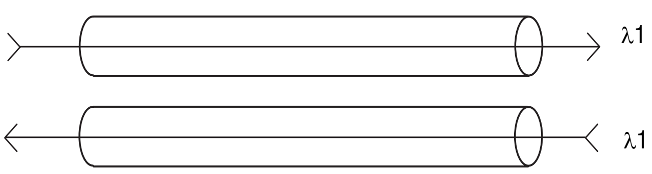


Figure 2. Full-duplex Operation on a Conventional Fiber Optic Installation

The fiber optic port on the bridging converter combines two data streams onto one fiber optic strand. This allows you to use more of the bandwidth inherent in fiber cable and so significantly increase the efficiency of your existing fiber optic backbone network.

The port can simultaneously send and receive Ethernet packets using the same wavelength of 1310 nm for both data streams. This allows for full-duplex operation with just one strand, as shown in Figure 3.

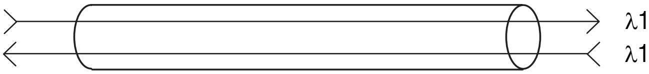


Figure 3. Two Data Streams on a Fiber Strand

The fiber optic port makes these bridging converter extremely useful in situations where a conventional fiber optic backbone network no longer has sufficient bandwidth to handle the data traffic. This problem has become a common occurrence on many networks due to the rapid growth of data traffic from sources such as voice over IP, multimedia applications, video conferencing, and the Internet.

The traditional solution to increasing bandwidth on a fiber optic backbone has been to install additional fiber optic cable. But this can be an extremely costly and time-consuming process. Additionally, conventional fiber optic installations are unable to use the extremely large bandwidth capacity that is inherent in fiber optic cable.

Bridging Media Converter Components

Figure 4 shows the front panel of the AT-FS201 Bridging Media Converter.

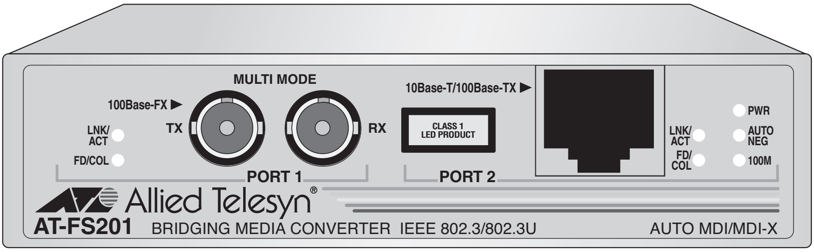


Figure 4. AT-FS201 Front Panel

Figure 5 shows the front panel of the AT-FS202 Bridging Media Converter.

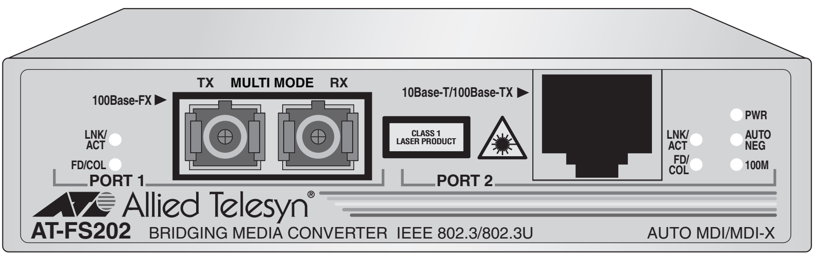


Figure 5. AT-FS202 Front Panel

Figure 6 shows a front panel of an AT-FS202SC/FS1 Bridging Media Converter.

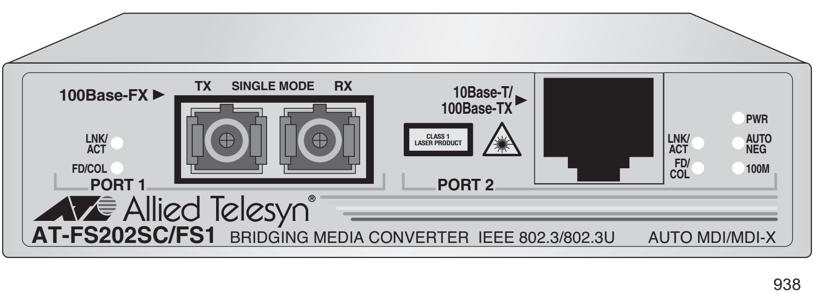


Figure 6. AT-FS202SC/FS1 Front Panel

The back panel of the AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters features a DC power connector and DIP switches for manually configuring the ports.

Figure 7 shows the back panel of the AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters with a 12VDC power connector.

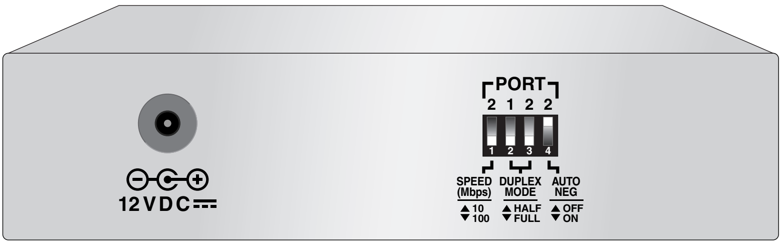


Figure 7. Back Panel of the AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters (12VDC Power Connector)

Table 1 lists the maximum operating distances for the converters.

Table 1. Maximum Operating Distances

Model	**100Base-FX**		**10Base-T/100Base-TX**	
	Connector	**Maximum Operating Distance**[1]	**Connector**	**Maximum Operating Distance**[2]
AT-FS201	Dual ST	2 km (1.24 mi)	RJ-45	100 m (328 ft)
AT-FS202	Dual SC	2 km (1.24 mi)	RJ-45	100 m (328 ft)
AT-FS202SC/FS1	Dual SC	15 km (9.4 mi)	RJ-45	100 m (328 ft)

1. Maximum distance for 100 Mbps optical datalinks is dependent on the following factors: type of optical fiber, duplex mode of both end-nodes, and maximum optical loss budget for each of the optical fiber at the operating optical wavelength.
2. Maximum distance can only be obtained when the UTP/STP cabling is installed and verified to TIA/EIA 568A Commercial Building Telecommunications Cabling Standard.

External Power Supply

The 12VDC-version converters come with the AC/DC power adapter, shown in Figure 8. This is an approved safety compliant AC power adapter for the 100 and 240V AC versions with an unregulated output of 12VDC.

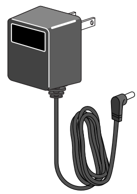


Figure 8. AC/DC Power Adapter for the 12VDC Version Converters

Key Features

The AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters have the following features:

- LEDs for unit and port status
- Auto MDI/MDI-X
- DIP switches for configuring the ports
- Half- or full-duplex operation on both ports
- RJ-45 twisted pair connector
- Dual SC or Dual ST fiber optic connector
- Data packet forwarding and filtering at full wire speed (10 Mbps to 100 Mbps and 100 Mbps to 100 Mbps)
- Store and forward switching mode
- Automatic address learning and aging
- IEEE 802.3u compliant Auto-Negotiation
- External AC/DC power adapter
- For use on a desktop, in an AT-WLMT-010 wallmounting bracket or in an AT-MCR12 chassis

Status LEDs

Table 2 defines the LEDs for the AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters.

Table 2. Status LEDs

LED	Color	Description
PWR	Green	Power is applied to the unit.
AUTO NEG	Green	Auto-negotiation on the twisted pair port is enabled.
	OFF	Auto-negotiation on the twisted pair port is disabled.
100M	Green	The twisted pair port is operating at 100 Mbps.
	OFF	The twisted pair port is operating at 10 Mbps.
LNK/ ACT	Green	A valid link has been established on the port.
	Blinking	Data is being received or transmitted on the port.
FD/COL	Green	The converter is operating in full-duplex mode.
	OFF	The converter is operating in half-duplex mode.
	Blinking	Collision are detected on the port.

Twisted Pair Port

The AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters have one 10Base-T/100Base-TX twisted pair port. The twisted pair port features a RJ-45 connector.

Port Speed

The twisted pair port is compliant with the 10Base-T and 100Base-TX standards and is capable of either 10 Mbps or 100 Mbps operation. You can set the port speed manually or, since the port is IEEE 802.3u Auto-Negotiation compliant, you can let the converter set the port speed automatically. With Auto-Negotiation, the speed of the port is set automatically by the converter after it determines the speed of the end-node connected to the port. Auto-negotiation is designed to ensure that the port on the converter and the end-node are operating at the same speed and that they are communicating at the highest possible common speed of the devices.

Duplex Mode

Duplex mode refers to how an end-node receives and transmits data. If an end-node can receive or transmit data, but not both simultaneously, the end-node is operating in what is referred to as half-duplex mode. If an end-node can both receive and transmit data simultaneously, the end-node is said to be operating in full-duplex mode. Naturally, an end-node capable of operating in full-duplex can handle data much faster than an end-node that can only operate in half-duplex mode.

The twisted pair ports on the AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters can operate in either half-or full-duplex mode. They are IEEE 802.3u-compliant and use Auto-Negotiation to set the duplex mode setting for you automatically.

For Auto-Negotiation to operate properly on a converter, the end-nodes connected to the converter should also use Auto-Negotiation. If an end-node does not have this feature and has a fixed duplex mode of full-duplex, the result will be a duplex mode mismatch between the end-node and a converter port. A port on the converter connected to an end-node with a fixed duplex mode of full-duplex will operate at only half-duplex. This results in the end node using full-duplex and the switch port using half-duplex. This can produce network performance problems. Should you encounter this situation, you must configure the port on the end-node to use Auto-Negotiation or, if it lacks that feature, to half-duplex.

Auto MDI/MDI-X

An RJ-45 twisted pair port on a 10 Mbps or 100 Mbps Ethernet network device can have one of two possible wiring configurations: MDI or MDI-X. The RJ-45 port on a PC, router, or bridge is typically wired as MDI, while the twisted pair port on a converter or hub is usually MDI-X.

When the twisted pair port on the AT-FS201, AT-FS202, and AT-FS202SC/FS1 converters is set to Auto-Negotiation, the port features automatic MDI/MDI-X. The RJ-45 port automatically determines the configuration of the port on the end-node and then configures itself appropriately. This feature allows you to use either a straight-through or crossover cable when connecting an end-node to the twisted pair port.

When the port on the AT-FS201, AT-FS202, and AT-FS202SC/FS1 converter is not set to Auto-Negotiation, the port defaults to MDI-X. To connect to an end-node that has the same wiring configuration, such as MDI-X to MDI-X, you would use a crossover twisted pair cable. To connect to an end-node that has different port wiring configuration, such as MDI to MDI-X, you would use a straight-through cable.

Fiber Optic Port

The AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters have one 100Base-FX fiber optic port. The fiber optic port features either a dual SC or a dual ST connector, depending on the model.

Port Speed

The fiber optic port is compliant with the 100Base-FX standard and has a fixed operating speed of 100 Mbps. The end-node connected to the fiber optic port on the converter must also be able to operate at 100 Mbps.

Duplex Mode

The fiber optic port on the converter can operate in half- or full-duplex mode. You must set the duplex mode manually using the DIP switches on the back of the unit.

Bridging Media Converter Performance

The bridging media converters perform at:

- 148,800 pps for 100 Mbps and 14,880 pps for 10 Mbps for full wire speed forwarding and filtering
- 200 Mbps maximum throughput in 100 Mbps, full-duplex mode
- 20 Mbps maximum throughput in 10 Mbps, full-duplex mode
- Storage for up to 512 MAC addresses
- 60 KBytes total packet buffer
- Low latency 14.3 μs (64-byte packet, 100 Mbps full-duplex)

DIP Switches

The DIP switches are used to manually configure the operating characteristics of the ports, such as port speed, duplex mode, and Auto-Negotiation.

For the 100Base-FX fiber optic port, you can manually set the duplex mode to either half- or full-duplex.

On the 10Base-T/100Base-TX twisted pair port, you can manually set the speed of the port to either 10 Mbps or 100 Mbps, set the duplex mode to either half- or full-duplex, and enable or disable Auto-Negotiation. Enabling Auto-Negotiation will automatically set the port's speed and duplex mode.

Note
A change to the DIP switch setting does not take effect until after you reset the unit. To reset the unit, power the unit OFF then ON.

MAC Address Table

Up to 512 MAC addresses can be stored in the converter’s MAC address table. The converter’s self-learning feature will learn all new addresses in real-time after power-up. If the source address of an incoming packet is not found in the MAC address table, the converter will update the table with the new address.

The converter also has an automatic address aging feature that will delete a source address from the table if it has not seen a frame from the end-node with that address within five minutes. This prevents the table from becoming filled with addresses of end-nodes that are no longer active.

The converter forwards all multicast, broadcast, and unlearned unicast packets when the MAC address table has exceeded its storage limit.

Store and Forward

The AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters support store and forward switching at Fast Ethernet full-wire speed in 100 Mbps, half- or full-duplex mode. Packets entering each port are stored in buffers. Once the full packet is received, the converter will forward or discard the packet, depending on its destination address and error status. This ensures that only error-free packets destined for another segment will be transferred across the converter, reducing network load. For example, if the packet entering from Port 1 is destined for an end-node on Port 2, the converter forwards the frame if the frame does not contain any errors. If the packet from Port 1 is destined for an end-node also connected to Port 1, the packet is discarded.

The converter will discard CRC errors, misaligned, runt, and under-oversized packets. When the packet has dribble bits at the end, the converter will truncate to octet boundary and check for a good FCS before forwarding.

Network Topology

Figure 9 illustrates a topology using one AT-FS202 Bridging Media Converter to interconnect two small networks of stakable hubs.

- Network 1 has an AT-8026FC switch connected to the 100Base-FX port on the AT-FS202 Converter.
- Network 2 has an AT-FS708 switch connected to the 10Base-T/100Base-TX port on the AT-FS202 Converter.

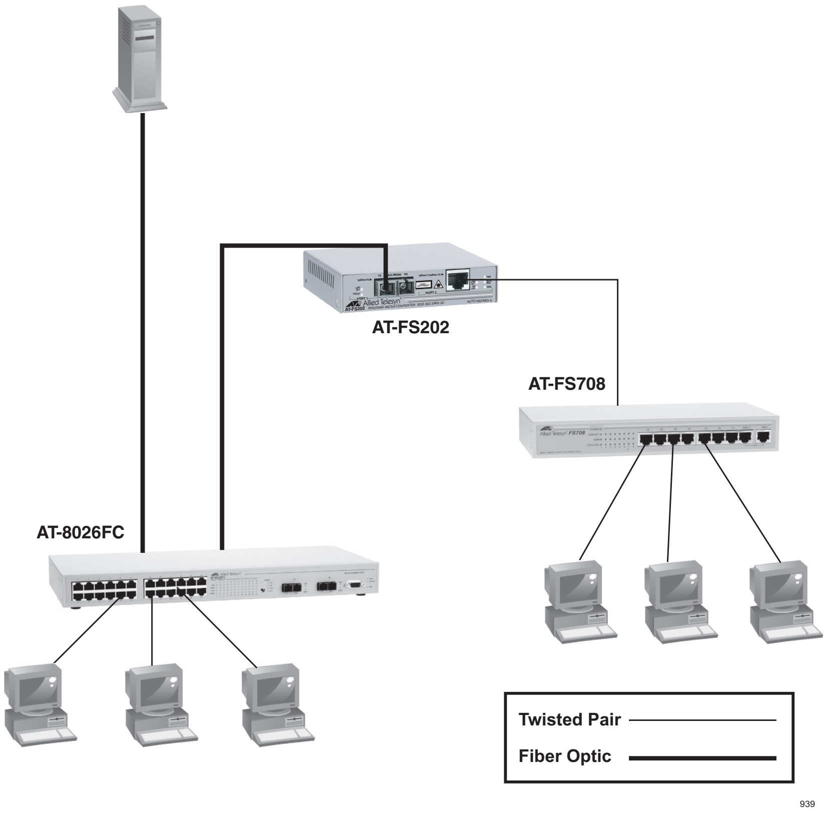


Figure 9. Typical Configuration Using the AT-FS202 Bridging Media

Chapter 2
Installation

This chapter explains how to install the AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters. These converters can be installed on a desktop, in an AT-WLMT-010 wallmounting bracket, or in an AT-MCR12 chassis.

Verifying Package Contents

Make sure the following items are included in your package. If any item is missing or damaged, contact your Allied Telesyn sales representative for assistance.

- One AT-FS201, AT-FS202, or AT-FS202SC/FS1 Bridging Media Converter
- Four protective feet (for desktop use only)
- External AC/DC power supply (12VDC model only)
- This installation guide
- Warranty card

Note
For information on the power supplies used with the AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters, refer to “External Power Supply” on page 6.

Planning the Installation

Be sure to observe the following guidelines when planning the installation of your converter.

- ❒ The end-node connected to the 100Base-FX fiber optic port must be able to operate at 100 Mbps.
- ❒ The end-node connected to the 10Base-T/100Base-TX twisted pair port can operate at either 10 Mbps or 100 Mbps.
- ❒ The end-node connected to a port on the switch can be a network adapter card, repeater, router, hub, or another switch.
- ❒ The twisted pair cabling must be kept away from sources of electrical noise, such as radios, transmitters, power lines, broadband amplifiers, electrical motor, and fluorescent fixtures.

Table 3 lists the cabling specifications for the twisted pair port.

Table 3. 10Base-T/100Base-TX Twisted Pair Cabling Specifications

Operating Mode	Cable Type	Maximum Operating Distance
10Base-T	Shielded or unshielded Category 3 or better	100 m (328 ft)
100Base-TX	Shielded or unshielded Category 5 or better	100 m (328 ft)

Table 4 lists the cabling specifications for the fiber optic port when operating in full-duplex mode.

Table 4. 100Base-FX Fiber Optic Cabling Specifications (Full-duplex)

Model	Cable Type	Maximum Operating Distance[1]	Maximum Allowable Loss Budget
AT-FS201	50/125 or 62.5/125 micron multimode	2 km (1.24 mi)	9.3dB @ 1310nm (50/125 MMF)
			12.8dB @ 1310nm (62.5/125 MMF)

Table 4. 100Base-FX Fiber Optic Cabling Specifications (Full-duplex)

Model	Cable Type	Maximum Operating Distance[1]	Maximum Allowable Loss Budget
AT-FS202	50/125 or 62.5/125 micron multimode	2 km (1.24 mi)	9.3dB @ 1310nm (50/125 MMF)
			12.8dB @ 1310nm (62.5/125 MMF)
AT-FS202SC/FS1	9/125 micron[2] single-mode	15 km (9.4 mi)	16dB at 1310nm

1. Maximum distance for 100 Mbps optical datalinks is dependent on the following factors: quality of fiber optic, duplex mode of both end-nodes, and maximum optical loss budget for the optical fiber at each operating optical wavelength.
2. The fiber optic strand can be non-dispersion-shifted, or non-zero dispersion-shifted single-mode cable.

Selecting a Site

Be sure to observe the following guidelines when selecting a site for your converter.

- ❒ Select a site that is dust-free and moisture-free.
- ❒ Select a site that will allow you to easily access the data cables and power cord.
- ❒ Use dedicated power circuits or power conditioners to supply reliable power to the device.
- ❒ Use the power sources described in “External Power Supply” on page 6.

Note
Use only power sources that are UL Listed (QQGQ or EPBU), TUV Licensed or other Safety Agencies approved, and that are suitable for country of use.

Reviewing Safety Guidelines

Please review the following safety guidelines before you begin to install the converter.

Warning
Class 1 laser device. 1

Warning
Do not stare into the laser beam. 2

Warning
To prevent electric shock, do not remove the cover. There are no user-serviceable parts inside. The unit contains hazardous voltages and should only be opened by a trained and qualified technician. 3

Warning
Do not work on this equipment or cables during periods of lightning activity. 4

Caution
Power cord is used as a disconnection device: To de-energize equipment, disconnect the power cord. 5

Caution
Pluggable Equipment: The socket outlet should be installed near the equipment and should be easily accessible. 7

Caution
Air vents: The air vents must not be blocked on the unit and must have free access to the room ambient air for cooling. 8

Caution

Operating Temperature: This product is designed for a maximum ambient temperature of 40°C. 9

Caution

All Countries: Install this product in accordance with local and National Electric Codes. 10

Installing the Bridging Media Converter

The AT-FS201, AT-FS202, and AT-FS202SC/FS1 Bridging Media Converters can be used on a desktop, mounted on a wall, or installed in an AT-MCR12 chassis.

Note
For wallmounting the converter, refer to the AT-WLMT-010 Wall-mounting Bracket Installation Guide (613-000258).

Note
For installing the converter in an AT-MCR12 chassis, refer to the AT-MCR12 Chassis Installation Guide (613-10725-00).

Using the Bridging Media Converter on a Desktop

To use the converter on a desktop, perform the following procedure:

1. Remove all equipment from the package and store the packaging material in a safe place.

Note
Do not remove the dust cover from the fiber optic port until you are ready to connect the fiber optic cable. Dust contamination can adversely impact the operating performance of the port on the converter.

2. Place the converter on a flat, secure surface (such as a desk or table) leaving ample space around the unit for ventilation.

3. Attach the four protective rubber feet to the bottom of the converter, as shown in Figure 10 on page 24.

> **Note**
> Do not attach the protective feet if you are wallmounting the unit, installing it in an AT-WLMT-010 wallmount bracket or in an AT-MCR12 chassis.

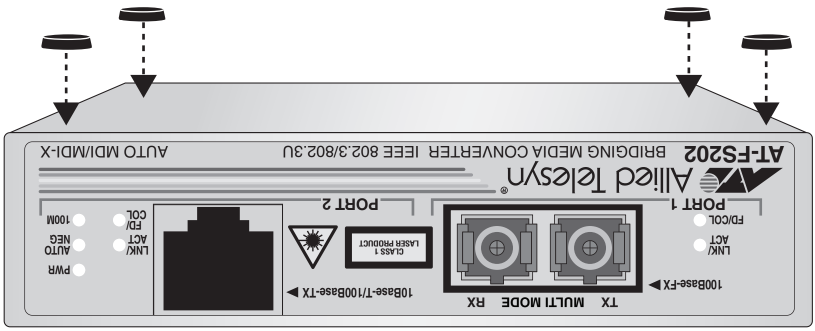


Figure 10. Attaching the Protective Feet

4. Configure the DIP switches. Refer to Figure 7 on page 5 for the location of the DIP switches and Table 5 for the possible settings.

> **Note**
> A change to the DIP switch setting does not take effect until after you reset the unit. To reset the unit, power the unit OFF then ON.

Table 5 lists the descriptions of the DIP Switch settings.

Table 5. DIP Switch Settings

DIP Switch No.	Port	Setting	Position	Description
1	2	Speed (Mbps)	Up Down	The twisted pair port operates at 10 Mbps. The twisted pair port operates at 100 Mbps.

Table 5. DIP Switch Settings (Continued)

DIP Switch No.	Port	Setting	Position	Description
2	1	Duplex Mode	Up Down	The fiber optic port operates in half-duplex mode. The fiber optic port operates in full-duplex mode.
3	2	Duplex Mode	Up Down	The twisted pair port operates in half-duplex mode. The twisted pair port operates in full-duplex mode.
4	2	Auto Neg	Up Down	Auto-Negotiation on the twisted pair port is OFF. Auto-Negotiation on the twisted pair port is ON.

When setting the DIP switches, consider the following:

- Setting the Auto Neg DIP switch for the twisted pair port to ON or OFF enables or disables Auto-Negotiation for the port. If you disable Auto-Negotiation, be sure to set the DIP switches for the port's speed and duplex mode to match the speed and duplex mode of the end-node.
- Disabling Auto-Negotiation on the twisted pair port also disables Auto MDI/MDI-X and configures the port as MDI-X.
- For the fiber optic port, set the port's duplex mode using the appropriate Duplex Mode DIP switch. This setting must match the duplex mode capability of the end-node to be connected to the port.

5. If you are installing the converter in an AT-MCR12 chassis, refer to the *AT-MCR12 Chassis Installation Guide* from our web site for instructions on how to install the converter in the chassis, then proceed to Step 8.

6. Place the converter on a secure, level surface, leaving ample space around the converter for ventilation.

7. Apply power to the converter.

Note
This step does not apply if you are mounting a 12VDC-version converter in an AT-MCR12 chassis.

For instructions on how to apply power to an AT-FS201, AT-FS202, or AT-FS202SC/FS1 Bridging Media Converter, refer to “Connecting a 12VDC Powered Unit” on page 28.

8. Remove the dust cover from the fiber optic port and connect the fiber optic cable to the 100Base-FX port.

   When attaching a fiber optic cable, be sure to observe the following guidelines:

   ❒ Be sure that the cable connector is firmly locked into place in the port.

   ❒ You should verify that you are using the appropriate type of fiber optic cabling. Refer to Table 4 on page 18 for fiber optic cabling specifications.

   ❒ You should verify that the operating specifications of the converter’s fiber optic port are compatible with the fiber optic port on the remote end-node. For example, you cannot connect a fiber optic port with a maximum distance of 2 kilometers and an operating wavelength of 1310 nm to another fiber optic port that has a maximum distance of 40 kilometers (24.8 miles) and an operating wavelength of 1550 nm.

   ❒ Dual SC ports consist of two separate connectors. Each connects to a separate fiber strand. One is for receiving data and the other is for transmitting data. When connecting a fiber optic cable to a SC port, be sure that the receiver fiber connector is connected to the transmitter connector on the remote end-node, and the transmitter fiber connector is connected to the receiver connector on the remote node.

9. Connect the twisted pair cable to the 10Base-T/100Base-TX port.

   When connecting a twisted pair cable to a port, observe the following guidelines:

   ❒ An RJ-45 connector should fit snugly into the port on the converter. The tab on the connector should lock the connector into place.

- You should check to be sure that you are using the appropriate type of twisted pair cabling. Refer to Table 3 on page 18 for twisted pair cable specifications.
- Since the twisted pair port, when operating in Auto-Negotiation, is Auto MDI/MDI-X, you can use either a straight-through or crossover twisted pair cable to connect any type of network device to a port on the converter. If you disable Auto-Negotiationon the port, the port default to MDI-X.

10. Power ON the end-nodes.

11. Verify that the LNK/ACT LEDs for both the fiber optic port and the twisted pair port are green. If either LED is OFF, refer to "Troubleshooting" on page 31 for instructions.

Connecting a 12VDC Powered Unit

To apply power to a 12VDC version converter, perform the following steps:

Note
The power adapter is not used if you install the converter in an AT-MCR12 chassis.

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1. Plug one end of the DC power cord to the power receptacle connector labelled 12VDC on the back panel of the converter, as shown in Figure 11.

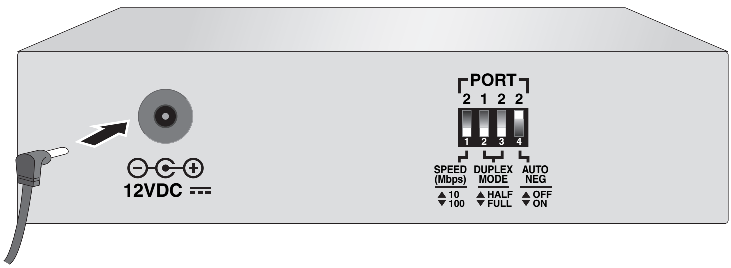


Figure 11. Connecting a 12VDC Powered Unit

2. Plug the AC/DC adapter to a power outlet. Refer to “Technical Specifications” on page 35 for power requirements.

3. Verify that the PWR LED on the front of the unit is green. If the PWR LED is OFF, refer to “Troubleshooting” on page 31.

4. Perform Step 8 through Step 11 on page 26 to complete the installation.

Warranty Registration

When you finish installing the product, you should register your product by completing the enclosed warranty card and sending it in.

Chapter 3
Troubleshooting

Follow the guidelines below to test and troubleshoot the installation in the event a problem occurs.

> **Note**
> If you change the speed or duplex mode of a port on the converter using the DIP switches, you must power OFF and then power ON the unit to activate the change.

If the PWR LED is OFF, do the following:

- ❒ If the converter is installed on a desktop, check to be sure that the power adapter is securely connected to a power outlet and that the power adapter cable is securely connected to the back of the converter.
- ❒ If the converter is installed in an AT-MCR12 chassis, check that the unit is fully seated in the slot and the retaining screw is securely fastened.
- ❒ Verify that the power outlet has power by connecting another device to it.
- ❒ Try using another power adapter.

If the LNK/ACT LED for the twisted pair port is OFF, do the following:

- ❒ Check that the end-node connected to the port is powered ON and is operating properly.
- ❒ Check that the twisted pair cable is securely connected to the twisted pair port on the converter and on the end-node.
- ❒ Check that the end-nodes connected to the switch are operating in the same duplex mode.
- ❒ Make sure that the twisted pair cable does not exceed 100 meters (328 feet) and that you are using a Category 3 or better

cable for 10Base-T operation or a Category 5 or better cable for 100Base-TX operation.

- If the twisted pair port is set to Auto-Negotiation, the end node connected to the port should also be using Auto-Negotiation. If the end node is not using Auto-Negotiation and has a fixed duplex mode of full-duplex, a duplex mode mismatch will result. To resolve this, you must disable Auto-Negotiation on the port and adjust the speed and duplex setting manually using the DIP switches. For further information on this, refer to “Duplex Mode” on page 9.
- If you disabled Auto-Negotiation on the port, check to be sure that the port is operating at the same speed and duplex mode as the end-node.
- If you disabled Auto-Negotiation, the port is configured as MDI-X. A crossover cable will be required if the port on the end-node is also MDI-X.

If the LNK/ACT LED for the fiber optic port is OFF, do the following:

- Verify that the end-node connected to the port is ON and is operating properly.
- Check that the fiber optic cable is securely connected to the fiber optic port on the converter and on the end-node.
- Check that the end-node connected to the port is operating at 100 Mbps.
- Check that the end-nodes connected to the converter are operating at the same duplex mode.
- Dual SC and dual ST ports consist of two separate connectors. Each connects to a separate fiber strand. One is for receiving data and the other is for transmitting data. When connecting a fiber optic cable to a SC port, be sure that the receiver fiber connector is connected to the transmitter connector on the remote end-node, and the transmitter fiber connector is connected to the receiver connector on the remote node.
- Test the attenuation on the fiber cable to ensure that it does not exceed acceptable values.
- Verify that you are using the appropriate type of fiber optic cable and that you have not exceeded the maximum operating distances. For cable types and maximum operating distances, refer to Table 4, “100Base-FX Fiber Optic Cabling Specifications (Full-duplex),” on page 18.

- ❐ Check that the operating specifications of the fiber optic port on the end-node are compatible with the operating specifications of the fiber optic port on the converter. For fiber optic port specifications, refer to “Fiber Optic Port Specifications” on page 38.

If you are still experiencing problems after testing and troubleshooting the installation, contact Allied Telesyn Technical Support for assistance. Refer to “Contacting Allied Telesyn” on page x or visit our web site at **www.alliedtelesyn.com** for support information.

Appendix A
Technical Specifications

Physical

Dimensions:	W x D x H 10.5 cm x 9.5 cm x 2.5 cm (4.125 in x 3.75 in x 1.0 in)
Weight:	.27 kg (0.60 lbs)

Temperature

Operating Temperature:	0° C to 40° C (32° F to 104° F)
Storage Temperature:	-25° C to 70° C (-13° F to 158° F)
Operating Humidity:	5% to 90% non-condensing
Storage Humidity:	5% to 95% non-condensing
Operating Altitude:	Up to 3,048 meters (10,000 feet)

Electrical Rating

Input Supply Voltage:	12V DC
Output Current:	0.5A (maximum)
Power Consumption:	6 Watts (maximum)

Agency Certifications

RFI Emissions	FCC Part 15 Class A, EN55022 Class A
Immunity	EN55024
Electrical Safety	UL 60950 ($_{C}UL_{US}$), EN60950 (TUV), CE
Laser Safety	EN60825

RJ-45 Twisted Pair Port Pinouts

Figure 12 shows the pin layout to an RJ-45 connector and port.

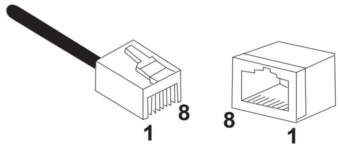


Figure 12. RJ-45 Connector and Port Pin Layout

Table 6 lists the RJ-45 pin signals when a twisted pair port is operating in the MDI configuration at 100 Mbps.

Table 6. MDI Pin Signals (100Base-TX)

Pin	Signal
1	TX+
2	TX-
3	RX+
6	RX-

Table 7 lists the RJ-45 port pin signals when a twisted pair port is operating in the MDI-X configuration at 100 Mbps.

Table 7. MDI-X Pin Signals (100Base-TX)

Pin	Signal
1	RX+
2	RX-
3	TX+
6	TX-

Fiber Optic Port Specifications

Table 8. Fiber Optic Loss Specifications (Benchmarks)

Fiber Type[1]	Fiber Optic Diameter (microns)	Optical Wavelength	Typical Loss Factor (dB/km)	Band-width (Mhz * km)
MMF	50/125	1310 nm	1.00	400
	62.5/125	1310 nm	1.00	500
SMF	9/125	1310 nm	0.40	N/A
		1550 nm	0.30	N/A

1. MMF = Multimode Fiber / SMF = Single-mode Fiber

Table 9. Fiber Optic Transmitter

Model	Fiber Optic Type[1]	Optical Wavelength	Launch Power (dBm)[2]		
			Min.	Avg.	Max.
AT-FS201 and AT-FS202	50/125 MMF	1310 nm	-22.5	-20.3	-14.0
	62.5/125 MMF	1310 nm	-19.0	-16.8	-14.0
AT-FS202SC/FS1	9/125 SMF	1310 nm	-15.0	-11.5	-8.0

1. MMF = Multimode Fiber / SMF = Single-mode Fiber
2. The launch power is measured at one meter from the transmitter.

Table 10. Fiber Optic Receiver

Model	Fiber Optic Type[1]	Optical Wavelength	Receive Power (dBm)		
			Min.	Typical	Saturation
AT-FS201 and AT-FS202	50/125 MMF	1310 nm	-31.8	-34.5	-14.0
	62.5/125 MMF	1310 nm	-31.8	-34.5	-14.0
AT-FS202SC/FS1	9/125 SMF	1310 nm	-31.0	-31.0	-8.0

1. MMF = Multimode Fiber / SMF = Single-mode Fiber

Table 11. Fiber Optic Datalink

Model	Fiber Optic Type[1]	Max. Power / Link Budget	Min. Distance Spec.[2]	Max. Distance Spec.
AT-FS201 and AT-FS202	50/125 MMF	9.3 dB	0	2 km (1.2 mi)
	62.5/125 MMF	12.8 dB	0	2 km (1.2 mi)
AT-FS202SC/FS1	9/125 SMF	16.0 dB	0	15 km (9.4 mi)

1. MMF = Multimode Fiber / SMF = Single-mode Fiber
2. The recommended minimum range is stated in all cases where the maximum transmitter output power exceeds the receivers saturation level. This is to prevent blinding or burning out of the optical receiver on the far-end-node.

Appendix B
Cleaning Fiber Optic Connectors

This section describes how to clean fiber optic connections. The fiber optic connector consists of a fiber optic plug and its adapter. The end of the fiber optic cable is held in the core of the ferrule in the plug. Light signals are transmitted through the core of the fiber. Even minor smudges, or dirt, on the end face of the fiber (completely invisible to the naked eye) can disrupt light transmission and lead to failure of the component or of the entire system. Therefore, it is of utmost importance to clean all fiber optic connectors before use.

Figure 22 shows the ferrule in a dual SC or a dual ST connector.

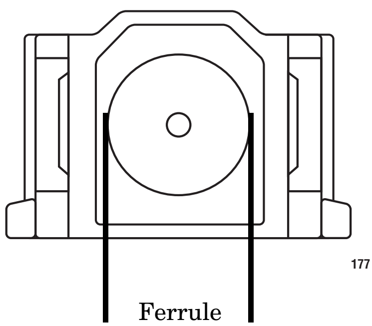


Figure 22. Ferrule in a Dual SC or a Dual ST Connector Plug

The end face of an unclean and clean ferrule is shown in Figure 23.

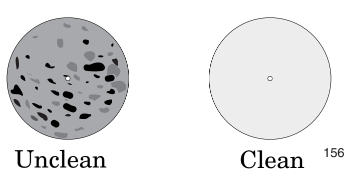


Figure 23. Unclean and Clean Ferrule

This appendix provides the following procedures:

- "Using a Cartridge-Type Cleaner" on page 42
- "Using a Swab" on page 44

Using a Cartridge-Type Cleaner

Fiber optic cartridge cleaners are available from many vendors and are typically called "cartridge cleaners," as shown inFigure 24.



Figure 24. Cartridge Cleaner

> **Note**
> Do not use compressed air or aerosol air to clean a fiber optic connector.

To clean a fiber optic connector using a cartridge cleaner, perform the following procedure.

1. With one hand, hold the cartridge cleaner and push the lever on the cleaning cartridge in the direction of the arrow to expose the cleaning surface, as shown in Figure 25.

2. Place the ferrule tip on the exposed cleaning surface and rub the ferrule in a downward direction, as shown in Figure 25.

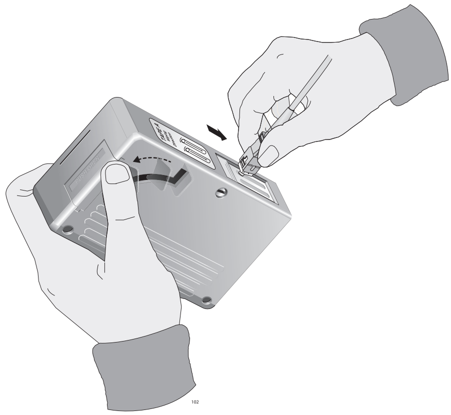


Figure 25. Rubbing the Ferrule Tip on the Cleaning Surface

Note
Rub the ferrule tip on the cleaning surface in one direction only.

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3. When you reach the end of the cleaning surface, pick up the ferrule tip, rotate and place it at the top and rub downwards at least two times.

Caution
Failing to pick up the ferrule tip when you reach the bottom of the cleaning surface can result in static electricity that can damage the fiber optic cable.

---

4. If desired, repeat steps 3 and 4.

5. If a fiber inspection scope is available, use the scope to inspect the ferrule end face to make sure that it is clean.

6. Reconnect the cable to the port or protect the ferrule tip with a dust cap.

Note
Always keep a dust cap on a fiber optic cable when it is not in use.

Note
Do not touch the end face of the ferrule in the connector.

Warning
Do not stare into the laser beam. 2

Warning
Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens. 31

Using a Swab

Specially treated swabs, or stick cleaners, are available for cleaning inside connector adapters or hard-to-reach ferrule tips. These swabs, often referred to as “lint free” or “alcohol free” swabs are available from many vendors, as shown in Figure 26 on page 44. Stick cleaners are available in both 2.5 mm and 1.25 mm sizes for use on SC and MU connectors respectively.

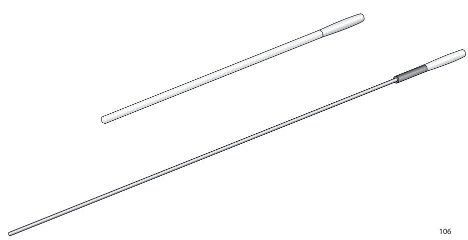


Figure 26. Lint-Free and Alcohol-Free Swabs

Note
Never use a household cotton swab and alcohol to clean a fiber optic connector. This may leave a residue on the ferrule tip.

Note
Do not used compressed air or aerosol air to clean a fiber optic connector.

To clean a recessed ferrule using a swab, perform the following procedure.

1. Insert the swab into the adapter as shown in Figure 27. Rub the ferrule tip with the swab.

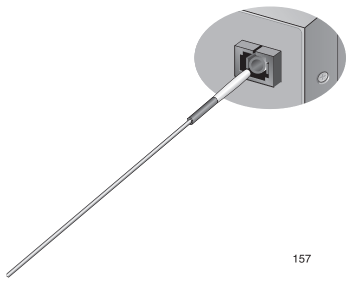


Figure 27. Cleaning a Recessed Ferrule

2. If desired, repeat step 1.

3. If a fiber inspection scope is available, use the scope to inspect the connector to make sure that it is clean and to check for scratches, pits, or other problems that may affect performance.

Note
Always keep a dust cap on a fiber optic cable when it is not in use.

Warning
Do not stare into the laser beam. 2

Warning
Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens. 31

Appendix C

Translated Electrical, Safety, and Emission Information

Important: This appendix contains multiple-language translations for the safety statements in this guide.

Wichtig: Dieser Anhang enthält Übersetzungen der in diesem Handbuch enthaltenen Sicherheitshinweise in mehreren Sprachen.

Importante: Este apéndice contiene traducciones en múltiples idiomas de los mensajes de seguridad incluidos en esta guía.

Important: Cette annexe contient la traduction en plusieurs langues des instructions de sécurité figurant dans ce guide.

Importante: Questa appendice contiene traduzioni in più lingue degli avvisi di sicurezza di questa guida.

Важно: Данное приложение содержит переводы с разных языков по безопасности, приведенное в данном руководстве.

Laser Safety Notices

1 **Warning:** Class 1 Laser product.

2 **Warning:** Do not stare into the laser beam.

Electrical Safety Notices

3 **Warning:** To prevent electric shock, do not remove the cover. No user-serviceable parts inside. This unit contains hazardous voltages and should only be opened by a trained and qualified technician. To avoid the possibility of electric shock, disconnect electric power to the product before connecting or disconnecting the LAN cables.

4 **Warning:** Do not work on equipment or cables during periods of lightning activity.

5 **Warning:** Power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord.

6 **Warning:** Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts.

7 Pluggable Equipment. The socket outlet shall be installed near the equipment and shall be easily accessible.

8 **Caution:** Air vents must not be blocked and must have free access to the room ambient air for cooling.

9 **Warning:** Operating Temperature. This product is designed for a maximum ambient temperature of 40° degrees C.

10 All Countries: Install product in accordance with local and National Electrical Codes.

11 **Warning:** As a safety precaution, install a circuit breaker with a minimum value of 20 Amps between the equipment and the DC power source.

Always connect the wires to the LAN equipment first before you connect the wires to the circuit breaker. Do not work with HOT feeds to avoid the danger of physical injury from electrical shock. Always be sure that the circuit breaker is in the OFF position before connecting the wires to the breaker.

12 **Warning**: Do not strip more than the recommended amount of wire. Stripping more than the recommended amount can create a safety hazard by leaving exposed wire on the terminal block after installation.

13 **Warning:** When installing this equipment, always ensure that the frame ground connection is installed first and disconnected last.

14 **Warning:** Check to see if there are any exposed copper strands coming from the installed wire. When this installation is done correctly there should be no exposed copper wire strands extending from the terminal block. Any exposed wiring can conduct harmful levels of electricity to persons touching the wires.

15 This system will work with Positive grounded or Negative grounded DC systems.

16 **Warning:** Only trained and qualified personnel are allowed to install or to replace this equipment.

17 **Caution:** The attached mounting brackets must be used to securely mount the device onto the wall.

18 **Caution:** Do not install in direct sunlight, or a damp or dusty place.

19 **Caution:** Do not expose the gateway device to moisture or water.

20 **Caution:** If the gateway device is installed indoors, make sure that the site is a dust-free environment. The site should provide for easy access to the ports of the gateway device.This will make it easy for you to connect and disconnect cables, as well as view the LEDs.

21 **Warning:** The power source for the gateway unit should be located near the unit and should be easily accessible.

22 **Caution:** To allow proper cooling of the gateway device, make sure that the air flow around the unit and through its heatsink cooling fins on the rear is not restricted.

23 Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

24 **Caution:** Risk of explosion if battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer’s instructions.

Attention: Le remplacement de la batterie par une batterie de type incorrect peut provoquer un danger d’explosion. La remplacer uniquement par une batterie du мкme type ou de type йquivalent recommandйe par le constructeur. Les batteries doivent кtre йliminйes conformйment aux instructions du constructeur.

25 **Warning:** For centralized DC power connection, install only in a restricted access area.

26 A tray cable is required to connect the power source if the unit is powered by centralized DC power. The tray cable must be a UL listed Type TC tray cable and rated at 600 V and 90 degrees C, with three conductors, minimum 14 AWG.

27 **Warning:** Mounting of the equipment in the rack should be such that a hazardous condition is not created due to uneven mechanical loading.

28 **Warning:** Remove all metal jewelry, such as rings and watches, before installing or removing a line card from a powered-on chassis.

29 Use dedicated power circuits or power conditioners to supply reliable electrical power to the device.

30 **Warning:** The chassis may be heavy and awkward to lift. Allied Telesyn recommends that you get assistance when mounting the chassis in an equipment rack.

31 **Warning:** Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens.

32 **Warning:** This unit might have more than one power cord. To reduce the risk of electric shock, disconnect all power cords before servicing the unit.

33 **Warning:** Only trained and qualified personnel are allowed to install or to replace this equipment.

34 **Warning:** The power input must be provided from SELV source only, per IEC 60950. Do not connect to a centralized DC battery bank.

35 UL recognized wires of 18 AWG minimum should be provided by the installer.

36 UL recognized wires of 22 AWG minimum should be provided by the installer.

37 **Caution:** Power to the hub must be sourced only from the adapter.

38 If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

39 **Caution:** Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

40 **Warning:** Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuits (e.g., use of power strips).

Telecommunications Compliance Notices

41 **Warning:** When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electronic shock, and injury to persons, including the following:

Do not use this product near water, for example, near a bathtub, washbowl, kitchen sink, or laundry tub in a wet basement or near a swimming pool.

Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

Do not use the telephone to report a gas leak in the vicinity of the leak.

42 **Warning:** Before connecting to the telephony (TEL) ports on the gateway device, make sure to disconnect the Public Switch Telephone Network (PSTN) feed to the premises.

43 **Warning:** To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

Lasersicherheitshinweise

1 **Achtung:** Laserprodukt der Klasse 1.

2 **Achtung:** Blicken Sie nicht in den Laserstrahl.

Elektrische Sicherheitshinweise

3 **Achtung:** Um Stromschlдge zu vermeiden, darf die Abdeckung nicht entfernt werden. Die Ausrьstung enthдlt keine benutzerwartbaren Teile. Diese Einheit fьhrt gefдhrliche Spannungen und sollte nur durch einen ausgebildeten und qualifizierten Techniker geцffnet werden. Zur Vermeidung der Mцglichkeit von Stromschlдgen ist die Stromversorgung des Produkts vor dem AnschlieЯen oder Abtrennen von LAN-Kabeln zu unterbrechen.

4 **Achtung:** Bei Gewittern und Blitzaktivitдt dьrfen keine Arbeiten an der Ausrьstung oder an Kabeln erfolgen.

5 **Achtung:** Das Stromkabel dient als Abtrennungselement. Zum Abschalten der Ausrьstung Stromkabel abziehen.

6 **Achtung:** Ausrьstung der Klasse I. Diese Ausrьstung muss geerdet werden. Der Stromstecker muss an eine vorschriftsmдЯig geerdete Steckdose angeschlossen werden. Eine inkorrekt verdrahtete Steckdose kann gefдhrliche Spannungen auf zugдngliche Metallteile aufbringen.

7 Steckbare Ausrьstung. Die Steckdose sollte in der Nдhe der Ausrьstung installiert und leicht zugдnglich sein.

7 **Vorsicht:** Belьftungsцffnungen dьrfen nicht blockiert werden und mьssen zur Kьhlung durch die Umluft frei zugдnglich sein.

9 **Achtung:** Betriebstemperatur. Dieses Produkt ist fьr eine maximale Umgebungstemperatur von 40° C konzipiert.

10 Alle Lдnder: Dieses Produkt muss entsprechend den цrtlichen und nationalen Elektrizitдtsvorschriften installiert werden.

11 **Achtung:** Als Sicherheitsvorkehrung sollte ein Ьberlastschalter mit einem minimalen Nennwert von 20 Ampere zwischen der Ausrьstung und der Gleichstromversorgung installiert werden.

Vor dem Anschluss der Kabel am Ьberlastschalter sollten stets zuerst die Kabel an die LAN-Ausrьstung angeschlossen werden. Zur Vermeidung von Verletzungen in Folge von Stromschlag sollte nicht mit SPANNUNGSFЬHRENDEN Versorgungen gearbeitet werden. Vor dem Anschluss der Kabel an den Ьberlastschalter ist stets Sorge zu tragen, dass der Ьberlastschalter AUSGESCHALTET ist.

12 **Achtung:** Nicht mehr als die empfohlene Kabellдnge abisolieren. Durch das Abisolieren von mehr als der empfohlenen Lдnge kцnnen gefдhrliche blanke Drдhte aus dem Anschlussblock hervorragen.

13 **Achtung:** Beim Installieren dieser Ausrьstung ist stets darauf zu achten, dass die Rahmenerdung zuerst angeschlossen und zuletzt abgetrennt wird.

14 **Achtung:** Das installierte Kabel muss auf etwaige freiliegende Kupferlitzen ьberprьft werden. Bei der korrekten Installation sollten keine freiliegenden Kupferdrahtlitzen aus dem Anschlussblock herausragen. Jegliche freiliegende Drдhte kцnnen fьr Personen, die sie berьhren, gefдhrlichen Strom fьhren.

15 Dieses System kann in Verbindung mit positiv geerdeten oder negativ geerdeten Gleichstromsystemen verwendet werden.

16 **Achtung:** Das Installieren und der Austausch dieser Ausrьstung ist nur ausgebildetem und qualifiziertem Personal gestattet.

17 **Vorsicht:** Mechanische Montage. Zur sicheren Wandmontage des Gerдts sind die beiliegenden Montageklammern zu verwenden.

18 **Vorsicht:** Das Gerдt darf nicht an feuchten, staubigen oder direktem Sonnenlicht ausgesetzten Orten installiert werden.

19 **Vorsicht:** Das Gateway-Gerдt darf keiner Feuchtigkeit oder Wasser ausgesetzt werden.

20 **Vorsicht:** Bei der Innenraummontage des Gateway-Gerдts ist darauf zu achten, dass es in einer staubfreien Umgebung installiert wird. Es sollte ein Installationsort gewдhlt werden, an dem die Ports am Gateway-Gerдt gut zugдnglich sind, um das AnschlieЯen und Abtrennen von Kabeln zu erleichtern und den freien Blick auf die LEDs zu ermцglichen.

21 **Achtung:** Die Stromquelle fьr die Gateway-Einheit sollte sich in ihrer Nдhe befinden und leicht zugдnglich sein.

22 **Vorsicht:** Zur Gewдhrleistung der erforderlichen Kьhlung des Gateway-Gerдts ist darauf zu achten, dass der Luftfluss um die Einheit und ьber seine an der Rьckseite befindlichen Kьhlrippen nicht behindert wird.

23 Stromkreisьberlastung: Der Anschluss der Ausrьstung an den Versorgungsstromkreis und die mцglichen Auswirkungen der Ьberlastung von Schaltkreisen auf den Ьberstromschutz und die Versorgungskabel sollten erwogen werden. In diesem Zusammenhang sollten auch die auf dem Typenschild der Ausrьstung angegebenen Nennwerte entsprechend berьcksichtigt werden.

24 **Vorsicht:** Beim Ersetzen der Batterie durch einen inkorrekten Typ besteht Explosionsgefahr. Die Batterie sollte nur durch denselben oder einen gleichwertigen, vom Hersteller empfohlenen Typ ersetzt werden. Die Batterien sind gemдЯ der Anleitungen des Herstellers zu entsorgen.

25 **Achtung:** Bei einem zentralisierten Gleichstromanschluss darf die Installation nur in einem Bereich mit gesichertem Zugang erfolgen.

26 Bei der Versorgung der Einheit durch zentralisierten Gleichstrom ist ein Tray-Kabel zum Anschluss der Stromquelle erforderlich. Das Tray-Kabel muss ein UL-gelistetes Typ-TC-Tray-Kabel mit einer Nennspannung von 600 V und einer Nenntemperatur von 90 Grad Celsius, mit drei Leitern und mindestens 14 AWG sein.

27 **Achtung:** Bei der Rackmontage der Ausrьstung ist darauf zu achten, dass keine Gefahrenbedingung durch ungleichmдЯige mechanische Belastung geschaffen wird.

27 **Achtung:** Vor dem Installieren oder Ausbauen einer Leitungskarte in das bzw. aus dem Chassis einer eingeschalteten Einheit ist aller metallischer Schmuck wie zum Beispiel Ringe oder Uhren zu entfernen.

29 Zur zuverlдssigen Stromversorgung des Gerдts sollte ein dedizierter Stromkreis oder Netzfilter und Stabilisator (Power Conditioner) verwendet werden.

30 **Achtung:** Das Chassis kann schwer und schwierig zu heben sein. Allied Telesyn empfiehlt, bei der Rackmontage des Chassis Hilfspersonal heranzuziehen.

31 **Achtung:** Sehen Sie nicht direkt auf die Enden der Faseroptikkabel und inspizieren Sie die Kabelenden nicht mit einer optischen Linse.

32 **Achtung:** An dieser Einheit kann mehr als ein Stromkabel vorhanden sein. Vor Wartungsarbeiten sollten zur Reduzierung des Stromschlagrisikos alle Stromkabel abgetrennt werden.

33 **Achtung:** Das Installieren und der Austausch dieser Ausrьstung ist nur ausgebildetem und qualifiziertem Personal gestattet.

34 **Achtung:** Der Stromeingang darf nur ьber eine SELV-Quelle gemдЯ IEC 60950 erfolgen. Eine zentralisierte Gleichstrom-Batteriebank darf nicht angeschlossen werden.

35 UL-anerkannte Kabel mit mindestens 18 AWG sollten vom Installateur bereitgestellt werden.

36 UL-anerkannte Kabel mit mindestens 22 AWG sollten vom Installateur bereitgestellt werden.

37 **Vorsicht:** Die Stromversorgung des Hub darf nur ьber den Adapter erfolgen.

38 Bei der Installation in einer geschlossenen oder einer mehrere Einheiten umfassenden Anordnung kann die Temperatur der Betriebsumgebung die Raumtemperatur ьbersteigen. Es sollte deshalb darauf geachtet werden, das die Ausrьstung in einer Umgebung installiert wird, die der maximalen Nennumgebungstemperatur (Tmra) des Herstellers entspricht.

39 **Vorsicht:** Beim Installieren der Ausrьstung in einem Rack ist darauf zu achten, dass der fьr den sicheren Betrieb der Ausrьstung erforderliche Luftfluss nicht beeintrдchtigt wird.

40 **Achtung:** Es sollte eine zuverlдssige Erdung der rackmontierten Ausrьstung aufrechterhalten werden. Andere Versorgungsleitungen als direkte Verbindungen zu den Zweigschaltungen (z. B. Verwendung von Verlдngerungskabeln) sollten besonders sorgfдltig erwogen werden.

Telekommunikationskonformitдtshinweise

41 **Achtung:** Bei der Verwendung Ihrer Telefonausrьstung sollten zur Reduzierung der Brand-, Stromschlag und Verletzungsgefahr stets grundsдtzliche Sicherheitsrichtlinien, einschlieЯlich der folgenden, befolgt werden:

Verwenden Sie dieses Produkt nicht in der Nдhe von Wasser, zum Beispiel in der Nдhe einer Badewanne, einer Waschschьssel, eines Spьlbeckens, eines Waschbottichs, in einem nassen Kellerraum oder in der Nдhe eines Schwimmbads.

Vermeiden Sie die Verwendung eines Telefons (mit Ausnahme eines schnurlosen Typs) wдhrend eines Gewitters. Es kцnnte eine geringfьgige Blitzschlaggefahr bestehen.

Verwenden Sie das Telefon nicht, um das Austreten von Gas zu melden, wenn es sich in der Nдhe dieser Gefahrenquelle befindet.

42 **Achtung:** Vergewissern Sie sich vor dem Anschluss der Telefonports (TEL) am Gateway-Gerдt, dass die Verbindung des Gebдudes zum цffentlichen Telefonnetz (PTSN) unterbrochen ist.

43 **Achtung:** Verwenden Sie zur Reduzierung der Brandgefahr nur Telekommunikationsleitungskabel Nr. 26 AWG oder stдrkeres Kabel.

Avisos de seguridad láser

1 **Atenciyn:** Producto lбser de clase 1.

2 **Atenciyn:** No mire el rayo lбser.

Avisos de seguridad elйctricas

3 **Atenciyn:** Para evitar la electrocuciyn, no quite la tapa. La unidad no contiene piezas que pueda reparar el usuario. Esta unidad contiene tensiones peligrosas y sylo la debe abrir un tйcnico convenientemente formado y cualificado. Para evitar todo riesgo de electrocuciyn, desconecte la alimentaciyn elйctrica del producto antes de conectar o desconectar los cables de la LAN.

4 **Atenciyn:** No manipule el equipo ni los cables mientras haya rayos en la atmysfera.

5 **Atenciyn:** El cable de alimentaciyn se utiliza como dispositivo de desconexiyn. Para desactivar el equipo, desconecte el cable de alimentaciyn.

6 **Atenciyn:** Equipo de Clase I. Este equipo debe conectarse a tierra. La clavija de alimentaciyn se debe enchufar a una toma elйctrica convenientemente conectada a tierra. El uso de una toma mal conectada podrнa provocar tensiones peligrosas en las piezas metбlicas accesibles para el usuario.

7 El equipo requiere conexiyn. La toma elйctrica debe estar situada cerca del equipo y ser de fбcil acceso.

8 **Precauciyn:** Las rejillas de ventilaciyn no deben estar obstruidas y deben tener libre acceso al aire de la sala para facilitar la refrigeraciyn.

9 **Atenciyn:** Temperatura de funcionamiento. Este producto estб disecado para funcionar con una temperatura ambiente mбxima de 40 єC.

10 Todos los paнses: Instale el producto de acuerdo con las recomendaciones de la normativa sobre instalaciones elйctricas de su paнs.

11 **Atenciyn:** Como medida de seguridad, instale un disyuntor con un valor mнnimo de 20 A entre el equipo y la toma de alimentaciyn CC.

Conecte siempre los cables a los equipos de la LAN antes de conectarlos al disyuntor. No trabaje con cables activos para evitar el riesgo de lesiones fнsicas derivadas de una descarga elйctrica. Asegъrese siempre de que el disyuntor estб en la posiciyn desconectada antes de conectar los cables.

12 **Atenciyn:** No pele mбs que la longitud recomendable de cable. Si se supera dicha longitud, puede producirse un riesgo al quedar cable al descubierto en el bloque de terminales despuйs de la instalaciyn.

13 **Atenciyn:** Cuando instale el equipo, asegъrese de instalar primero la conexiyn a tierra del bastidor y de desconectarla en ъltimo lugar.

14 **Atenciyn:** Compruebe si hay algъn hilo de cobre al descubierto que proceda del cable instalado. Cuando la instalaciyn se realiza correctamente, no debe quedar ningъn hilo de cobre al descubierto fuera del bloque de terminales. Todo cable descubierto puede conducir un nivel peligroso de electricidad a las personas que lo toquen.

15 Este sistema funciona con sistemas CC con conexiyn a tierra positiva y negativa.

16 **Atenciyn:** Este equipo sylo debe ser instalado y manipulado por personal convenientemente formado y cualificado.

17 **Precauciyn:** Utilice los soportes de montaje que acompacan al dispositivo para montarlo en un muro.

18 **Precauciyn:** No instale el dispositivo expuesto a la luz solar directa ni en un lugar hъmedo o con polvo.

19 **Precauciyn:** No exponga el dispositivo de puerta de enlace a la humedad o el agua.

20 **Precauciyn:** Si el dispositivo de puerta de enlace se instala en el exterior, asegъrese de que el entorno estй libre de polvo. El emplazamiento debe permitir un acceso fбcil a los puertos del dispositivo de puerta de enlace. De esta forma, resultarб fбcil conectar y desconectar los cables y ver los indicadores LED.

21 **Atenciyn:** La toma elйctrica de la unidad de puerta de enlace debe estar situada cerca de la unidad y ser de fбcil acceso.

22 **Precauciyn:** Para permitir la refrigeraciyn adecuada del dispositivo de puerta de enlace, asegъrese de no limitar la circulaciyn de aire alrededor de la unidad ni a travйs de las aletas de refrigeraciyn del radiador de la parte trasera.

23 Sobrecarga de circuitos: Tenga en cuenta la conexiyn del equipo al circuito de alimentaciyn y el posible efecto de la sobrecarga de los circuitos en la protecciyn contra excesos de corriente y en los cables de alimentaciyn. Para ello, consulte los valores que se indican en la placa de caracterнsticas del equipo.

24 **Precauciyn:** Si la baterнa se sustituye por otra de tipo incorrecto, existe un peligro de explosiyn. Sustitъyala ъnicamente por otra baterнa del mismo tipo, o equivalente, recomendada por el fabricante. Deseche la baterнa de acuerdo con las instrucciones del fabricante.

25 **Atenciyn:** En el caso de una conexiyn CC centralizada, instale la unidad en una zona de acceso restringido.

26 Utilice un cable de control para la conexiyn a la toma elйctrica si la unidad utiliza alimentaciyn CC centralizada. El cable de control debe ser de tipo TC, figurar en la lista UL y tener una capacidad nominal de 600 V y 90 єC, con tres conductores y de un mнnimo de14 AWG.

27 **Atenciyn:** Si el equipo se monta en un rack, se deberб evitar todo peligro de irregularidad en la carga mecбnica.

28 **Atenciyn:** Quнtese todas las joyas metблicas, como anillos y relojes, antes de instalar o quitar una tarjeta de red de un chasis con alimentaciyn elйctrica.

29 Utilice circuitos de alimentaciyn dedicados o acondicionadores de alimentaciyn para suministrar energнa elйctrica fiable al dispositivo.

30 **Atenciyn:** El chasis puede ser pesado y difнcil de levantar. Allied Telesyn recomienda buscar ayuda para montar el chasis en un rack.

31 **Atenciyn:** No mire directamente los extremos del cable de fibra yptica ni los inspeccione con una lente yptica.

32 **Atenciyn:** Esta unidad puede tener mбs de un cable de alimentaciyn. Para reducir el peligro de electrocuciyn, desconecte todos los cables de alimentaciyn antes de manipular la unidad.

33 **Atenciyn:** Este equipo sylo debe ser instalado y manipulado por personal convenientemente formado y cualificado.

34 **Atenciyn:** La alimentaciyn sylo debe proceder de una toma SELV, conforme a la norma UEC 60950. No conecte la unidad a un banco centralizado de baterнas CC.

35 El instalador debe suministrar cables que figuren en la lista UL de un mнnimo de 18 AWG.

36 El instalador debe suministrar cables que figuren en la lista UL de un mнnimo de 22 AWG.

37 **Precauciyn:** La alimentaciyn del concentrador sylo debe proceder del adaptador.

38 Si la unidad se instala en un conjunto de rack cerrado o con varias unidades, la temperatura ambiente de funcionamiento del entorno del rack puede ser superior a la de la sala. El equipo se debe instalar en un entorno que no supere la temperatura ambiente nominal mбxima (Tmra) indicada por el fabricante.

39 **Precauciyn:** La instalaciyn en un rack debe realizarse de forma que se garantice el caudal de aire necesario para el buen funcionamiento del equipo.

40 **Atenciyn:** Se debe mantener en todo momento la fiabilidad de la conexiyn a tierra de los equipos montados en rack. Preste especial atenciyn a las conexiones que no procedan directamente de los circuitos de bifurcaciyn (por ej., regletas de conexiyn).

Avisos de conformidad de telecomunicaciones

41 **Atenciyn:** Cuando utilice su equipo telefynico, deberб adoptar las siguientes precauciones de seguridad bбsicas para reducir el riesgo de incendio, descarga electrynica y lesiones:

No utilice este producto en zonas hъmedas; por ejemplo, cerca de una bacera, un lavabo o un fregadero, en un sytano hъmedo o cerca de una piscina.

Evite el uso de telйfonos no inalбmbricos durante una tormenta elйctrica. a fin de evitar el riesgo de electrocuciyn como consecuencia de un rayo.

No utilice el telйfono para notificar una fuga de gas en las inmediaciones de la misma.

42 **Atenciyn:** Antes de realizar la conexiyn a los puertos de telefonнa (TEL) del dispositivo de puerta de enlace, asegъrese de desconectar la alimentaciyn de la red telefynica conmutada pъblica (PSTN/RTC) de las instalaciones.

43 **Atenciyn:** Utilice sylo cable de telecomunicaciyn 26 AWG o superior para reducir el riesgo de incendio.

Avis de sécurité laser

1 **Avertissement:** Produit laser de classe 1.

2 **Avertissement:** Ne pas observer directement le rayon laser.

Avis de sйcuritй йlectrique

3 **Avertissement:** Pour йviter tout risque d'йlectrocution, ne pas dйposer le capot. L'appareil ne contient aucun composant rйparable par l'utilisateur. Il est exposй a des tensions dangereuses et ne doit кtre ouvert que par un technicien compйtent et qualifiй. Pour йviter tout risque d'йlectrocution, dйbrancher l'alimentation йlectrique du produit avant de connecter ou de dйconnecter les cвbles de rйseau local.

4 **Avertissement:** Ne pas travailler sur cet йquipement ni sur ses cвbles en prйsence de foudre.

5 **Avertissement:** Le cordon d'alimentation est utilisй en tant que mйcanisme de dйconnexion. Pour mettre l'йquipement hors tension, dйbrancher le cordon d'alimentation.

6 **Avertissement:** Йquipement de classe I. Cet йquipement doit кtre mis a la terre. La prise d'alimentation doit кtre branchйe sur une sortie d'alimentation correctement mise a la terre. Dans le cas contraire, les piиces mйtalliques accessibles risquent d'кtre soumises a des tensions dangereuses.

7 Йquipement a connecter. La prise d'alimentation doit se situer a proximitй de l'йquipement et кtre facilement accessible.

8 **Attention:** Les orifices de ventilation doivent rester libres de toute obstruction pour pouvoir assurer le refroidissement par l'air de la piиce.

9 **Avertissement:** Tempйrature de fonctionnement. Ce produit a йtй conзu pour fonctionner a une tempйrature ambiante maximum de 40° C.

10 Dans tous les pays: installer le produit conformйment aux rйglementations йlectriques nationales et locales.

11 **Avertissement:** Par mesure de sйcuritй, installer un coupe-circuit d’une intensitй minimum de 20 ampиre entre l’йquipement et la source d’alimentation en courant continu.

Toujours connecter les fils a l’йquipement de rйseau local avant de les raccorder au coupe-circuit. Ne pas travailler sur des composants d’alimentation CHAUDS pour йviter tout risque d’accident corporel par йlectrocution. Toujours s’assurer que le coupe-circuit est DЙSACTIVЙ avant de connecter les fils au coupe-circuit.

12 **Avertissement**: Respecter les recommandations pour dйnuder les fils. Un dйnudage excessif risque de prйsenter des risques pour la sйcuritй en laissant le fil exposй sur le bornier aprиs l’installation.

13 **Avertissement:** Lors de l’installation de cet йquipement, toujours s’assurer que la connexion de terre de la structure est installйe en premier et dйconnectйe en dernier.

14 **Avertissement:** Vйrifier la prйsence de fils de cuivre exposйs sur le cвble d’installation. Si l’installation a йtй correctement rйalisйe, aucun fil de cuivre sortant du bornier ne doit кtre exposй. Tout fil exposй peut exposer les personnes qui y touchent a une tension dangereuse.

15 Ce systиme fonctionne avec les mйcanismes c.c. de mise a la terre nйgative ou positive.

16 **Avertissement:** Seul le personnel qualifiй et compйtent est autorisй a installer ou a remplacer cet йquipement.

17 **Attention:** Les supports de montage fournis doivent кtre utilisйs pour fixer l’йquipement au mur.

18 **Attention:** Ne pas installer l’йquipement au soleil, ni dans un endroit humide ou poussiйreux.

19 **Attention:** Ne pas exposer le pйriphйrique servant de passerelle a l’eau ou l’humiditй.

20 **Attention:** Si le pйriphйrique servant de passerelle est installй a l’intйrieur, s’assurer qu’il se trouve dans en endroit non poussiйreux. Le site doit offrir un accиs aisй au port du pйriphйrique servant de passerelle afin de faciliter la connexion et la dйconnexion des cвbles, tout en permettant d’observer aisйment les voyants.

21 **Avertissement:** La source d’alimentation d’une unitй servant de passerelle doit se situer a proximitй de l’unitй et rester facilement accessible.

22 **Attention:** Pour permettre le refroidissement correct de l’unitй servant de passerelle, s’assurer que l’air circule librement autour de l’unitй et a travers les ailettes du dissipateur thermique a l’arriиre.

23 Surcharge du circuit: En connectant l’йquipement au circuit d’alimentation, tenir compte des rйpercussions йventuelles d’une surcharge du circuit sur la protection contre les surcharges et le cвblage d’alimentation. Tenir compte des valeurs nominales indiquйes sur la plaque signalйtique de l’йquipement.

24 **Attention:** Le remplacement de la batterie par une batterie de type incorrect peut provoquer un danger d’explosion. La remplacer uniquement par une batterie du mкme type ou de type йquivalent recommandйe par le constructeur. Les batteries doivent кtre йliminйes conformйment aux instructions du constructeur.

25 **Avertissement:** Pour une connexion d’alimentation c.c. centralisйe, installer uniquement dans un emplacement d’accиs limitй.

26 Un chemin de cвble doit кtre utilisй pour la connexion a la source d’alimentation si l’unitй est alimentйe par alimentation c.c. centralisйe. Le chemin de cвble doit кtre de type TC agrйй UL, intensitй nominale de 600 V, 90 °C, trois conducteurs, 14 AWG minimum.

27 **Avertissement:** L’installation de l’йquipement sur un rack doit se faire sans provoquer de danger par un chargement mйcanique dйsйquilibrй.

28 **Avertissement:** Retirer les bijoux en mйtal, tels que les bagues et les montres, avant d’installer ou de retirer une carte d’un chвssis sous tension.

29 Utiliser des circuits d’alimentation ou des unitйs de conditionnement dйdiйs pour fournir une alimentation йlectrique fiable a l’йquipement.

30 **Avertissement:** Le chвssis peut кtre lourd et difficile a soulever. Allied Telesyn recommande de demander de l’aide pour installer le chвssis dans un rack.

31 **Avertissement:** Ne pas observer directement l’extrйmitй des cвbles en fibres optiques ou les inspecter a l’aide d’un objectif optique.

32 **Avertissement:** Cette unitй peut кtre йquipйe de plusieurs cordons d’alimentation. Pour rйduire les risques d’йlectrocution, dйbrancher tous les cordons d’alimentation avant de procйder a la maintenance de l’unitй.

33 **Avertissement:** Seul le personnel qualifiй et compйtent est autorisй a installer ou a remplacer cet йquipement.

34 **Avertissement:** L’alimentation doit кtre fournie par une source SELV uniquement, conformйment a la norme IEC 60950. Ne pas connecter a une rangйe de batteries c.c. centralisйe.

35 L’installateur doit fournir des fils de 18 AWG agrййs UL.

36 L’installateur doit fournir des fils de 22 AWG agrййs UL.

37 **Attention:** Le concentrateur doit uniquement кtre alimentй par l’adaptateur.

38 Si l’йquipement est installй dans un rack fermй ou a plusieurs unitйs, la tempйrature ambiante de fonctionnement du rack risque d’кtre supйrieure a la tempйrature ambiante de la piиce. Il convient d’en tenir compte avant d’installer l’йquipement dans un environnement conforme a la tempйrature ambiante maximum du constructeur.

39 **Attention:** Rйduction de la circulation d’air: l’installation de l’йquipement dans un rack ne doit pas compromettre la circulation d’air requise pour son fonctionnement sйcurisй.

40 **Avertissement:** Une terre fiable doit кtre maintenue sur l’йquipement en rack. Faire plus particuliиrement attention aux connexions d’alimentation autres que les connexions directes sur les circuits de dйrivation (par ex. utilisation de barrettes d’alimentation).

Тйlйcommunications – Avis de conformitй

41 **Avertissement:** Les prйcautions йlйmentaires de sйcuritй doivent кtre systйmatiquement respectйes en utilisant l’йquipement tйlйphonique pour rйduire les risques d’incendie, d’йlectrocution et d’accident corporel, notamment:

Ne pas utiliser ce produit prиs d’une source d’eau, telle qu’une baignoire, un lavabo, un йvier ou un baquet dans un sous-sol humide ou prиs d’une piscine.

Йviter d’utiliser le tйlйphone (autre que sans fil) en prйsence de foudre pendant un orage. La foudre peut entraоner un lйger risque d’йlectrocution.

Ne pas utiliser le tйlйphone pour signaler une fuite de gaz a proximitй de la fuite.

42 **Avertissement:** Avant de connecter les ports tйlйphoniques (TEL) sur le pйriphйrique servant de passerelle, veiller a dйconnecter les alimentations RTPC (rйseau tйlйphonique public commutй) du local.

43 **Avertissement:** Pour rйduire les risques d’incendie, utiliser uniquement un cordon de tйlйcommunication n° 26 AWG ou supйrieur.

Indicazioni sulla sicurezza laser

1 **Avvertenza:** Prodotto laser Classe 1.

2 **Avvertenza:** Non fissare il raggio laser.

Indicazioni sulla sicurezza elettrica

3 **Avvertenza:** Per evitare scosse elettriche, non rimuovere la copertura. All'interno non sono presenti componenti utilizzabili dall'utente. Questa unita presenta voltaggi rischiosi e deve essere aperta solo da un tecnico qualificato ed esperto. Per eliminare il rischio di scosse elettriche, scollegare il cavo di alimentazione del prodotto prima di collegare o scollegare i cavi della rete locale LAN.

4 **Pericolo:** Non utilizzare l'apparecchiatura o maneggiare i cavi in caso di lampi.

5 **Attenzione:** Il cavo di alimentazione viene utilizzato come dispositivo di scollegamento. Per togliere la corrente all'apparecchiatura, scollegare il cavo di alimentazione.

6 **Attenzione:** Apparecchiatura Classe I. Questa apparecchiatura deve essere messa a terra. Il cavo di alimentazione deve essere collegato a un socket correttamente cablato e messo a terra. Un socket non correttamente cablato potrebbe trasferire voltaggi pericolosi su componenti di metallo accessibili.

7 Apparecchiatura cablata. Il socket deve essere installato accanto all'apparecchiatura e deve essere facilmente accessibile.

8 **Attenzione:** Le prese d'aria non devono essere ostruite e devono avere libero accesso all'aria dell'ambiente per raffreddare l'apparecchiatura.

9 Temperatura di esercizio. Questo prodotto и progettato per una temperatura ambiente massima di 40°C.

10 Per tutti i paesi: Installare il prodotto in conformita con le normative sull'elettricita locali e nazionali.

11 **Avvertenza:** Per precauzione, installare un salvavita con un valore minimo di 20 ampere tra l'apparecchiatura e la fonte di alimentazione CC.

Collegare i cavi all'apparecchiatura LAN prima di collegarli al salvavita. Per evitare il rischio di danni fisici causati da scosse elettriche, non utilizzare l'apparecchiatura ad alte temperature. Verificare che il salvavita sia in posizione OFF prima di collegare i cavi.

12 **Avvertenza:** Non scollegare piщ cavi di quelli raccomandati: puт essere pericoloso lasciare dei cavi esposti sul blocco terminale dopo l'installazione.

13 **Avvertenza:** Quando si installa l'apparecchiatura, verificare che il collegamento di messa a terra FG (frame ground) sia installato per primo e disinstallato per ultimo.

14 **Avvertenza:** Verificare che non sporgano fili di rame dai cavi installati. Se l'installazione viene effettuata correttamente, non vi sono fili di rame scoperti, sporgenti dal blocco terminale. Gli eventuali fili scoperti possono condurre livelli di elettricita dannosi sulle persone che li toccano.

15 Questa apparecchiatura funziona con sistemi CC con messa a terra a polarita positiva o negativa.

16 **Avvertenza:** Solo personale esperto e qualificato puт installare o sostituire l'apparecchiatura.

17 **Attenzione:** Per un montaggio a muro sicuro del dispositivo, и necessario utilizzare i supporti di montaggio forniti in dotazione.

18 **Attenzione:** Non installare il dispositivo in un luogo esposto alla luce solare, umido o polveroso.

19 **Attenzione:** Non esporre il dispositivo gateway all'umidita o all'acqua.

20 **Attenzione:** Se il gateway и installato in un ambiente chiuso, verificare che l'ambiente sia privo di polvere. Il sito di installazione dovrebbe disporre di un facile accesso alle porte del gateway. Questo vi consentira di collegare e scollegare i cavi e visualizzare i LED in modo semplice.

21 **Avvertenza:** La fonte di alimentazione dell'unita gateway deve essere posizionata vicino all'unita, in un luogo facilmente accessibile.

22 **Attenzione:** Per consentire il raffreddamento appropriato del dispositivo gateway, verificare che il flusso d'aria attorno all'unita e attraverso le ventole di raffreddamento per la dispersione del calore poste sul retro non sia ostruito.

23 Sovraccarico del circuito: Prestare attenzione al collegamento dell'apparecchiatura al circuito di alimentazione e all'effetto che il sovraccarico dei circuiti potrebbe avere sulla protezione contro i sovraccarichi di corrente e sui cavi di alimentazione. In tal senso, tenere presente i valori riportati sull'etichetta dell'apparecchiatura.

24 **Attenzione:** Se si sostituisce la batteria con un tipo di batteria non corretto, si rischia di provocare un'esplosione. Sostituire la batteria solo con una dello stesso tipo o di un tipo equivalente raccomandato dal produttore. Eliminare le batterie usate secondo le istruzioni del produttore.

25 **Avvertenza:** In caso di alimentazione CC centralizzata, installare l'apparecchiatura solo in aree ad accesso limitato.

26 Se l'unita ha un'alimentazione CC centralizzata, и necessario un cavo di tipo TC approvato UL, valutato a 600 V e 90°C, con tre conduttori, di minimo 14 AWG.

27 **Avvertenza:** Il montaggio dell'apparecchiatura in rack deve essere effettuato in modo da evitare di provocare rischi dovuti a un carico meccanico irregolare.

28 **Avvertenza:** Rimuovere tutti gli oggetti di metallo, ad esempio anelli e orologi, prima di installare o estrarre una scheda di linea da un chassis acceso.

29 Utilizzare circuiti di alimentazione o alimentatori dedicati per fornire energia elettrica al dispositivo in modo affidabile.

30 **Avvertenza:** Il chassis potrebbe risultare pesante e scomodo da sollevare. Allied Telesyn consiglia di richiedere assistenza per il montaggio del chassis in rack.

31 **Avvertenza:** Non osservare le estremita dei cavi a fibre ottiche direttamente oppure attraverso una lente ottica.

32 **Avvertenza:** Questa unita potrebbe disporre di piщ cavi di alimentazione. Per ridurre il rischio di scosse elettriche, scollegare tutti i cavi di alimentazione prima di iniziare la manutenzione dell'unita.

33 **Avvertenza:** Solo personale esperto e qualificato puт installare o sostituire l'apparecchiatura.

34 **Avvertenza:** L'alimentazione deve essere fornita da una fonte SELV, come specificato nello standard IEC 60950. Non collegare il dispositivo a una batteria CC centralizzata.

35 I cavi riconosciuti UL di minimo 18 AWG non sono forniti in dotazione.

36 I cavi riconosciuti UL di minimo 22 AWG non sono forniti in dotazione.

37 **Attenzione:** L'hub deve essere alimentato solo mediante l'adattatore.

38 Se l'installazione и posizionata in un ambiente chiuso o in rack multi-unita, la temperatura operativa del rack potrebbe essere maggiore della temperatura ambiente. Per questo motivo, installare l'apparecchiatura in un ambiente compatibile con la temperatura ambiente massima stimata dal produttore (Tmra).

39 **Attenzione:** L'installazione dell'apparecchiatura in rack dovrebbe essere effettuata in modo che il flusso d'aria richiesto per un funzionamento sicuro non venga compromesso.

40 **Attenzione:** И necessario mantenere la messa a terra dell'apparecchiatura montata in rack. Prestare particolare attenzione ai collegamenti di alimentazione non CC ai circuiti periferici (ad esempio all'uso dei cavi di alimentazione).

Indicazioni per la conformita con le norme sulle telecomunicazioni

41 **Avvertenza:** Quando si utilizza l'apparecchiatura telefonica, per ridurre il rischio di incendio, scosse elettriche e danni alle persone, и necessario seguire alcune precauzioni di base per la sicurezza, ad esempio:

Non utilizzare il prodotto in prossimita di acqua, ad esempio, vicino a vasche da bagno, lavabi, lavandini, piscine oppure in ambienti umidi.

Non utilizzare un telefono (di tipo non cordless) durante un temporale: esiste il rischio remoto che i lampi provochino scosse elettriche.

Per segnalare una perdita di gas, non utilizzare il telefono in prossimita della perdita.

42 **Avvertenza:** Prima di utilizzare le porte per il collegamento telefonico (TEL) del dispositivo gateway, verificare che la rete telefonica pubblica (PSTN) sia disconnessa.

43 Per ridurre il rischio di incendi, utilizzare solo un cavo di linea telefonica di 26 AWG o superiore.

Лазерная безопасность

1 **Внимание:** лазерный продукт, класс 1.

2 **Внимание:** Не смотрите прямо в лазерный луч.

Электрическая безопасность

3 **Внимание:** Для предотвращения электрического шока, не снимайте кожух. Внутри нет частей, подлежащих обслуживанию пользователем. Этот устройство – под опасным напряжением и должно открываться только обученным и квалифицированным инженером. Для избежания возможности поражения электрическим током, отсоедините питание перед соединением или отсоединением сетевых кабелей LAN.

4 **Внимание:** Не работайте с оборудованием во время грозы.

5 **Внимание:** Кабель питания используется для отсоединения. Для отсоединения оборудования, отсоедините кабель питания.

6 **Внимание:** Оборудование Класса I. Это оборудование должно быть заземлено. Вилка питания должны быть присоединена к соответствующим образом подключенному заземлению. Неправильное соединение может подвергнуть доступные металлические части действию опасного напряжения.

7 Розетки. Розетка должна быть установлена невдалеке от оборудования и должна быть легко доступной.

8 **Предостережение:** Вентиляционные отверстия не должны быть заблокированы и должен быть свободный доступ к воздуху в комнате для охлаждения.

9 **Внимание:** Рабочая температура. Этот продукт предусмотрен для температуры окружающего воздуха не выше + 40° C.

10 Во всех странах: Инсталлируйте продукт в соответствии с национальными нормами электротехники.

11 **Внимание:** Для безопасности установите прерыватель для максимальной силы тока 15 ампер между оборудованием и источником постоянного тока.

Всегда подсоединяйте провода к сетевому оборудованию (LAN) перед тем, как присоединять кабели к прерывателю. Не работайте с кабелями под напряжением, чтобы избежать поражения электротоком. Перед присоединением проводов к прерывателю, убедитесь, что прерыватель находится в положении ВЫКЛ (OFF).

12 **Внимание:** Не очищайте от изоляции провод больше, чем рекомендовано. Чрезмерное очищение кабеля может составлять опасность после инсталляции.

13 **Внимание:** При инсталляции оборудования, убедитесь, что заземление подключается в первую, а отключается в последнюю очередь.

14 **Внимание:** Проверьте, нет ли на инсталлированных проводков на кабеле. При правильной инсталляции на терминале свободных проводков быть не должно. Открытые провода могут представлять опасность электрического поражения тем лицам, которые прикасаются к проводам.

15 Эта система действует как с плюсовым, так и минусовым заземлением постоянного тока.

16 **Внимание:** Это оборудование должно быть инсталлировано только обученными и квалифицированным работниками.

17 **Предостережение:** Оборудование должно быть надежно прикреплено к стене с помощью скоб.

18 **Предостережение:** Не инсталлируйте на солнцепеке, во влажном или пыльном месте.

19 **Предостережение:** Не подвергайте шлюзовую установку действию влажности или воды.

20 **Предостережение:** Если шлюзовая установка инсталлируется в помещении, позаботьтесь, чтобы в помещении не было пыли. Должен быть обеспечен легкий доступ к портам оборудования, чтобы Вам было легко соединять и отсоединять кабели и видеть светодиоды.

21 **Внимание:** Источник питания должен быть невдалеке от установки, и к нему должен быть удобный доступ.

22 **Предостережение:** Для хорошей вентиляции шлюзовой установки, позаботьтесь, чтобы вокруг установки и через вентиляционные решетки мог свободно циркулировать воздух.

23 Перегрузка контура: Следует подумать о том, какое количество оборудования присоединяется к контуру питания и на возможный эффект перегрузки контуров на защиту перегрузки и провода питания. Следует обращать внимание на указанные предельные показатели на фабричных табличках.

24 **Предостережение:** Возможен взрыв при замене неправильным типом батареи. Заменяйте только тем же или эквивалентным типом, рекомендованным производителем. Утилизируйте использованные батареи только в соответствии с указаниями производителя.

25 **Внимание:** Для централизованного подсоединения постоянного тока, устанавливайте только в помещении, доступ к которому ограничен.

26 Для подсоединения источника питания, если установка питается централизованным постоянным током, требуется желобной кабель. Кабель должен быть признанным UL типа и предназначен для 600 В и + 90°C, с тремя кондукторами, минимум 14 AWG (американский калибр).

27 **Внимание:** Установка оборудования на раме должна быть такой, чтобы не создавалось опасности от неровной механической нагрузки.

28 **Внимание:** Снимите все механические украшения, кольца и часы, перед инсталляцией и удалением линейной карты с корпуса под напряжением.

29 Для надежного питания используйте отдельные контуры питания и выравниватели энергии.

30 **Внимание:** Корпус может быть тяжелым и поднять его может быть сложно. Allied Telesyn рекомендует, что при установке корпуса на раме Вам необходимо обеспечить соответствующую помощь.

31 **Внимание:** Не смотрите прямо на торцы волоконно-оптического кабеля и не инспектируйте торцы кабеля с помощью оптической линзы.

32 **Внимание:** Установка может быть оборудована несколькими проводами питания. Перед техническим обслуживанием установки, отсоедините все провода питания.

33 **Внимание:** Оборудование должно обслуживаться и заменяться только обученными и квалифицированными работниками.

34 **Внимание:** Питание должно подаваться только от источника SELV, в соответствии с IEC 60950. Не подключайте к централизованному блоку аккумуляторов постоянного тока.

35 Инсталлятор должен обеспечивать провода, признанные UL, минимум 18 AWG.

36 Инсталлятор должен обеспечивать провода, признанные UL минимум 22 AWG.

37 **Предостережение:** Питание на узел должно подаваться только с адаптера.

38 При монтировке на раме с несколькими установками или в закрытом контуре, рабочая температура оборудования на раме может быть выше, чем температура окружающей среды. Поэтому следует позаботиться о том, чтобы температура не превышала максимальной температуры окружающей среды, указанной производителем (Tmra).

39 **Предостережение:** Уменьшенный воздушный поток: инсталляция оборудования на раме должна быть такой, чтобы не ограничивать циркуляцию воздуха, необходимую для безопасной работы оборудования.

40 **Внимание:** Оборудование на раме необходимо надежно заземлять. Особое внимание следует обращать на соединения питания, помимо прямых соединений к веткам контура (например, на розеточные блоки).

Телекоммуникационное соответствие

41 ⚠ **Внимание:** При использовании телефонного оборудования, всегда следует обращать внимания на требования безопасности для снижения риска пожара, поражения током и ранения, в том числе:

Не используйте оборудование рядом с водой – например ванной, раковиной или стиральным резервуаров или в мокром подвале рядом с бассейном.

Во время электрической бури не используйте телефон (кроме беспроводного). Есть некоторый риск поражения от молнии.

Не используйте телефон для сообщения об утечке газа вблизи от утечки.

42 ⚠ **Внимание:** Перед соединения к телефонным портам (TEL) на шлюзовой установке, отсоедините городской телефон (PSTN) от помещения.

43 **Внимание:** Для снижения риска пожара, используйте коммуникационный кабель не меньше 26 AWG.